

SWIVEL JOINTS 101

What to consider when selecting these components for any application

By Dave Morrow, OPW Engineered Systems

From fire trucks to steel mills, swivel joints are essential components for all kinds of machinery and applications. The components provide the smooth connection between stationary pipes or hoses and rotating machinery parts.

Design, plant and maintenance engineers use swivel joints in flexible piping systems, loading arms, hose reels, sewer rodding and wastewater treatment equipment as well as various types of process machinery. They also use swivel joints in machine tool coolant transfer, drum-filling applications and in a variety of in-plant fluid and dry bulk transfer applications.

Swivel joint selection

The most advanced machinery can breakdown if the machine elements are not able to move. Swivel joints are necessary investments that pay off in a big way. They extend machinery lifetime and reduce maintenance and downtime.

It is extremely important to follow the manufacturer's specifications when selecting swivel joints. If the requirements aren't met, leakage is likely to occur and the machinery will fail.

The design parameters of a given application must also be understood. Factors such as pressure, temperature and supported weight play an essential role in properly selecting a swivel. Another key factor that must be considered is the corrosiveness of the fluid itself.

The application environment is critical to selecting the right swivel joint. By carefully considering the fluid's chemical composition, its temperature and the external environment, the perfect swivel joint for the application can be chosen.

Options

The breadth of swivel joint options is endless when the potential combinations of sizes, seals and connections, not to mention metals, are considered. These metals include carbon steel, stainless steel,

brass, aluminum, bronze and ductile iron.

Versatility is the key to any effective swivel joint as specification can vary drastically depending on the job and functionality required.

Swivel joints are available in one, two and three planes of rotation for virtually unlimited flexibility. Standard combinations of metals and seal materials cover pressures, temperatures, corrosion resistance and load bearing capacities, well within the limits of most application requirements. The list of end connections is also extensive. Threaded (NPT), flanged (150/300 ANSI) and butt-weld ends are some of the most common.

Specialty swivel joints

Custom swivel joints can be designed and manufactured for any possible application. Engineers can help determine the appropriate design for the application by providing experienced consultation, backed up by the right swivel design, tailored specifically to meet the application needs. Specialty swivels are available in a wide range of materials and sizes.

A few of the most typical applications include: loading arms, hose reels, steel mills, marine/dock hoses, firefighting equipment, machine tools, filtration equipment, wastewater treatment, aviation ground support equipment, tank trucks and drum fillers.

Here are some of the most used swivel joints and how they impact the effective flow of fluids across an array of industries:

Loading arm replacement swivels

Loading arm systems allow the transfer of fluids or liquefied gas into a tank truck or railcar through a flexible piping system. Some applications require a loading arm to load through a top connection, while other connection points are at the bottom.

The functionality of loading arm swivel joints has evolved over the years to meet the demands of fluid handling solutions. Whether the application involves tank trucks, railcars, drums or totes, and the moving

↑ Swivel joints support this loading-arm system with a 15-foot reach, drop tubes long enough to reach the interior bottom of any railcar, and a torsion-spring counterbalance.

of petroleum products, liquefied gases, asphalt, solvents or hazardous/corrosive chemicals, swivels play an integral part in the process.

Hose reel swivels

Swivel joints are also an integral part of many hose reel applications, and a large variety of these parts are designed specifically for hose reels. In addition, there is the ability to customize a hose reel swivel to fit a specific application.

Dual-split flange swivels

Dual-split flange swivel joints are specifically designed to transfer acids, solvents, petrochemicals and other toxic fluids. This type of swivel joint features heavy-duty construction and unique design components that help make it the best available swivel technology in the industry.

Swivels are everywhere

No matter what type of industrial fluid application you are operating in, swivels are helping get the job done. They are flexible, efficient, cost-effective and durable. **PR**

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